Dental Extraction During Dicumarol Therapy

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• **Extraction of 14 teeth in six patients taking dicumarol caused no unusual bleeding. Discontinuance of dicumarol prior to dental extraction should not necessarily be a routine procedure; in certain persons with a demonstrated strong tendency to recurrent thrombosis, dicumarol should be continued, based on the decision that the danger of clotting without the drug is greater than the danger of bleeding with the drug.**

IN ADMINISTERING long term antithrombotic therapy with dicumarol, it is a common practice to warn patients against the recognized hazards of prothrombin reduction, including the danger of hemorrhage following dental extraction. It is generally agreed that extraction should not be done until the prothrombin time is allowed to return to normal.[5] Failure to instruct one patient, however, resulted in several experiences which revised the authors' opinion on this matter. The patient, on an office visit for routine prothrombin determination, mentioned that he had had several teeth extracted recently (Table 1, Case 1). The dentist was called, was surprised to learn that the patient had been taking dicumarol, and said there had been no unusual bleeding.

In another case (Case 2, Table 1), after cerebral thrombosis with hemiplegia, the patient received dicumarol for one and one-half months and the prothrombin concentration was maintained between 20 and 50 per cent. After a severe attack of diarrhea lasting several days, hemiplegia recurred, and the prothrombin concentration was found to be 100 per cent. The dicumarol dosage was increased and again the concentration was reduced to between 20 and 50 per cent and so maintained by continuous therapy. Three years later, when dental extraction became necessary, the oral surgeon was loath to extract the teeth without discontinuance of dicumarol. The patient was reluctant to discontinue dicumarol. The authors hesitated to make a decision. An able advocate, the patient pleaded his case well in a letter to the oral surgeon:

> ". . . If I desist from taking dicumarol for four days there is the possibility that I might have another thrombosis. If I do take it, there is another possibility (which I personally think is somewhat less) of excessive bleeding from the extraction. . . . It is my deliberate desire and deliberate wish to take the second risk, i.e. the risk of some excessive hemorrhage rather than the risk that would be involved from ceasing to take dicumarol . . ."

Three teeth were extracted without unusual bleeding, and a fourth was extracted later.

After these two experiences, we had greater courage in continuing antithrombotic therapy through dental extractions with other patients. Altogether, six patients in our care have had 14 extractions. The last patient had a first molar extracted at a time the prothrombin concentration was 14 per cent. He "bled a little more than usual," the oral surgeon reported, but bleeding was controlled without difficulty. It is especially significant that the average age of these patients was over 65 years, for bleeding is more likely to occur in persons in the higher age brackets because of degenerative vascular lesions. In younger patients with rheumatic heart disease whose blood vessels are in better condition, the danger would be less.

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DISCUSSION

The results of these six cases indicated that the risk of bleeding from dental extraction during dicumarol therapy is much less than has been suspected. This can be reasonably explained. In a raw, bleeding area in an internal, inaccessible wound, pressure cannot be applied, and the thromboplastin essential to clotting is swept away by the blood flow. In external surface bleeding, however, pressure can be applied and there is tissue juice available as a source of thromboplastin; therefore the bleeding usually is easily stopped. However, this report should not be construed as evidence that there is no need ever to discontinue dicumarol for dental extractions. The prothrombin deficiency presumably could lead to serious bleeding, although no instances have been reported.

Most patients can safely discontinue dicumarol for four days. Thirteen of 14 patients with rheumatic heart disease and multiple embolism reported by Tulloch and Wright[5] had no bad effects from stopping dicumarol before dental extraction. In some patients, however, thromboembolic episodes apparently may develop quickly. In chronic cardiovascular disease in which the lesions inciting thrombosis do not heal but continue as a constant

TABLE 1.—*Results following dental extraction in patients receiving dicumarol therapy.*

Case	Sex and Age	Diagnosis	Teeth Extracted	Prothrombin Concentration (Per Cent)	Statement of Dentist
1.	M 71	Coronary artery disease; angina pectoris	Upper right molar Upper left molar Upper right bicuspid	35 34 19	"No difficulty in stopping bleeding. Gums not sutured."
2.	M 76	Recurrent cerebral thrombosis; two episodes hemiplegia	Three upper incisors Upper first molar	39 20	"Extracted three teeth without excessive bleeding . . . Not necessary to place packs in the wounds." "Normal amount of bleeding."
3.	M 56	Cerebral thrombosis; two episodes of hemiplegia	Right upper 2nd bicuspid Second and 3rd right upper molars	22 24	"No excessive bleeding and made a good recovery."
4.	M 55	Cerebral thrombosis; hemiplegia; diabetes	Lower right 2nd bicuspid	28	"No difficulty in stopping bleeding. A normal blood clot formed in 20 minutes."
5.	M 64	Rheumatic heart disease; cerebral embolism	Lower left bicuspid and upper right bicuspid	51	"No unusual bleeding. Blood clot formed normally."
6.	M 72	Coronary artery disease; myocardial infarction	Lower right first molar	14	"Bled a little more than usual, but with pressure packing was controlled nicely."

thrombotic hazard, the rise in coagulability that follows cessation of the drug at times may be followed closely by recurrent thromboembolism.

One of the 14 patients reported upon by Tulloch and Wright[5] developed a cerebral embolus and four days later a brachial artery embolus, which he survived. Facquet[2] reported upon one patient with rheumatic heart disease who developed a cerebral embolus and died when the drug was discontinued as a prelude to dental extraction. Cosgriff,[1] reporting a series of 26 patients with chronic rheumatic valvular disease with systemic arterial embolism, stated that in 70 per cent of the cases in which long-term anticoagulant therapy was stopped, a complicating embolism occurred, one fatal and another seriously crippling. Four emboli occurred within the first two weeks after treatment was discontinued. Presumably a comparable risk exists in recurring thrombophlebitis and in recurring cerebral thrombosis when dicumarol is stopped.

Certainly every patient must be meticulously evaluated in an attempt to identify those who are likely to have thrombosis if the drug is stopped. It is difficult to identify this small number, but in those in whom recurrent thrombosis has developed when dicumarol has been discontinued or when the prothrombin has unpredictably risen, the thrombotic potential is high (Cases 2 and 3, Table 1).

If such patients require dental extraction, the risk of bleeding, the authors believe, is much less than the risk of thrombosis. Olwin and Friedman[3] pointed out that a little bleeding may be of slight consequence but that a little clotting may mean the difference between a living and a dead patient. It is doubtful that bleeding from a dental socket can be as serious as an episode of thromboembolism. In case of hemorrhage, available K_1 preparations can produce a rapid rise in prothrombin activity.[4]

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